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NEW HAVEN  
COLLEGE

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# **NEW HAVEN YMCA JUNIOR COLLEGE**

*Supplement to 1946 Catalogue*

**Evening Courses  
Coeducational**

## CALENDAR 1945-46

*Spring and Summer*

### First Semester

Veterans Conference	Friday	March 1
Freshman Placement Examinations		March 4, 6
Veterans Conference	Wednesday	March 20
<b>Registration period closes</b>	Friday	March 22
Freshman Placement Examinations		March 27, 29
Equivalency Examinations		April 2, 4
Classes begin	Monday	April 8
Good Friday—holiday	Friday	April 19
Memorial Day—holiday	Thursday	May 30
Examinations begin	Friday	June 14
Examinations end	Monday	June 17

### Second Semester

<b>Registration period closes</b>	Wednesday	July 3
Classes begin	Monday	July 8
Labor Day—holiday	Monday	September 2
Examinations begin	Friday	September 13
Examinations end	Monday	September 16

### ADMINISTRATIVE OFFICES

Winchester Hall  
New Haven 11, Conn.

15 Prospect Street  
Telephone 7-3131, Ext. 532

#### Office Hours

Monday, Wednesday, and Friday  
9 A.M. to 5 P.M. and 7 P.M. to 10 P.M.

Tuesday and Thursday  
9 A.M. to 5 P.M.

Saturday  
9 A.M. to 1 P.M.

**T**HE Twenty-fifth Anniversary Bulletin of the College gives you the history of our Work-Study program which has been developed through the cooperation of Yale University and Connecticut business and industry. You will no doubt also wish to refer to it for general information regarding programs of study, purposes of the College, and the provisions for veterans education under Public Law 346 and Public Law 16.

This supplement will provide you with specific information about admission requirements, tuition charges, course sequence, and course descriptions.

### **WORK-STUDY LOAD**

The study load of each student must be planned in accordance with his work load. Under the accelerated program a student working full time cannot carry more than two subjects at one time and occasionally he may find it necessary to limit his study to one subject. A student working part-time or on a split shift (four hours) may carry three subjects. Classes are scheduled for late afternoon (5:30 to 6:35) and evenings (7:15-9:35), Monday, Wednesday, and Friday. Naturally, the length of time necessary to complete any one of the degree programs varies with the study load.

### **THREE-YEAR PLAN LEADING TO DEGREE**

This plan for men and women who are employed in full time work is one which the New Haven YMCA Junior College has offered for a number of years. Under this plan terminal programs are offered in the fields of business, engineering, and management. The essential materials of the basic technical courses of a regular four-year college curriculum are included. The student carries not more than two subjects at any one time, (20 semester hours during a year of four semesters.)

## **TWO-YEAR PLAN LEADING TO DEGREE**

In order to meet the needs of the students who may wish to carry a heavier program of study the College is planning a schedule which will make it possible to secure 30 semester hours credit during the course of a year. This program is intended for the high school graduate who may wish to work only part-time and thus be able to carry a full program of evening classes and a late afternoon class.

The pattern of subjects under the Two-Year Plan is not identical with that offered under the Three-Year Plan. It approximates more nearly the program that would be offered under the first two years of a four-year program. The student studies a wider range of subject matter, but does not take the advanced technical courses that are possible under the three-year plan.

The possibilities of this plan should not be overlooked by high school graduates and veterans who may wish to study and live at home. To illustrate how it will work let's look at the following situation. A prospective student may now have a job which requires four hours of work in the morning. His afternoon hours will be free for study and he will be able to attend classes three days each week taking both late afternoon (5:30 to 6:35) and evening (7:15-9:35) courses. By doing this, he will find it possible to complete his education in one of the programs offered at the College in the same period of time that it would take him to complete the first two years of college work if he were enrolled in a full-time college program.

## **THE UNCLASSIFIED STUDENT**

Men and women who are not desirous of working for the degree may wish to register for one or more subjects in one of the regular programs. All classes offered by the College are open to students who have the necessary prerequisites.

Unclassified students may matriculate as degree students at any time provided they meet the admission requirements for the program of the curriculum of their choice.



## ADMISSION TO THE COLLEGE PROGRAMS

Students may regularly begin programs of study at the College either in the spring or in the fall of each year. (See calendar.) Three means are utilized in attempting to determine the student's eligibility for admission to the programs of the College:

1. A personal interview
2. A study of the student's previous educational record
3. The results of entrance examinations which are required of all students seeking admission.

Although the College prescribes no set pattern of high school subjects as an entrance requirement, the following outlines of high school subjects are suggested as desirable:

For admission to the Divisions of Engineering and Management	For Admission to the Division of Business
English .....3 units	English .....3 units
Algebra .....2 units	History & Social Science .....2 units
Geometry .....1 unit	Mathematics .....1 unit
Physics or Chemistry.....1 unit	Additional academic subjects not less than .....4 units
Additional academic subjects, not less than .....5 units	Vocational subjects not more than .....5 units
Vocational subjects, not more than .....3 units	
<hr style="width: 10%; margin-left: auto; margin-right: 0;"/> 15 units	<hr style="width: 10%; margin-left: auto; margin-right: 0;"/> 15 units

## ADMISSION OF NON-HIGH SCHOOL GRADUATES

Recognizing that many capable students withdraw from high school prior to graduation, the Connecticut State Department of Education provides an opportunity for these students to secure the legal equivalent of a high school diploma by means of State Equivalency Examinations. Students who hold State certificates may matriculate as regular students on the same basis as high school graduates.

Candidates for the Qualifying Academic Certificate must: (1) be graduates of or have the education equivalent to that of the eighth grade, (2) be sixteen years of age or over, and (3) not be enrolled in a regular day high school. In addition, they must pass examinations in four areas of academic study, usually mathematics, English, general science, and social science. The courses in mathematics A, B, C, D (page 24) and English A-B (page 22) will prepare the candidate in two of the four areas.

For the convenience of students, these examinations are given at the College twice each year, in the fall and in the spring.

Students who are not high school graduates but meet the other requirements for admission are permitted to enroll in the College on a conditional basis pending their qualifying for the State equivalency certificate.

### TUITION AND FEES

REGISTRATION FEE .....	\$3.00
(Required of students registering for the first time)	
LATE REGISTRATION FEE .....	\$2.00
(Required of all students registering after the close of the registration period. See calendar.)	
TUITION (per course per semester) .....	22.00
STUDENT ACTIVITIES FEE .....	.50
DEFERRED CHARGE .....	1.00
MAKE-UP EXAMINATION .....	5.00
CREDITING EXAMINATION .....	5.00
DIPLOMA FEE .....	10.00

### Schedule of Tuition Payment Dates

#### Cash Plan:

Tuition fees for each semester are as follows:

	5 sem hrs.	2½ sem. hrs.
Due when semester begins .....	\$17.50†	\$ 9.50†
Due on or before date of second payment .....	27.00	13.00
	\$44.50	\$22.50

#### Deferred Plan:

The tuition rate per semester on the deferred plan is \$45.00 for two subjects and \$23.00 for one subject. It is payable as follows:

#### Spring 1946

April 3 .....	\$17.50†	\$ 9.50†
April 29 .....	14.00	7.00
May 20 .....	14.00	7.00

#### Summer

July 8 .....	17.50†	9.50†
July 29 .....	14.00	7.00
August 26 .....	14.00	7.00

† Not refundable. Includes student fee.

## PROGRAMS IN DIVISION OF BUSINESS

### Accounting

	Sequence of Subjects for Fall Admission	Sequence of Subjects for Spring Admission
Fall and Winter	Modern Civilization (Ec 13-14) Accounting (A 11-12)	
Spring and Summer	Law of Contracts and Business Associations (L 11-12) English (E 13-14)	Law of Contracts and Business Associations (L 11-12) Accounting (A 11-12)
Fall and Winter	Accounting (A 21-22) Law of Sales (L 21) Law of Commercial Paper (L 22)	Accounting (A 21-22) Law of Sales (L 21) Law of Commercial Paper (L 22)
Spring and Summer	Economics (Ec 33-34) Accounting (A 31-32)	Economics (Ec 33-34) Accounting (A 31-32)
Fall and Winter	Auditing (A 33-34) Income Tax Procedure (A 41-42)	Auditing (A 33-34) Income Tax Procedure (A 41-42)
Spring and Summer	Elective Cost Accounting (A 23-24)	English (E 13-14) Cost Accounting (A 23-24)
Fall and Winter		Elective Modern Civilization (Ec 13-14)

### Business Administration

	Sequence of subjects for Fall Admission	Sequence of subjects for Spring Admission
Fall and Winter	Modern Civilization (Ec 13-14) Accounting (A 11-12)	
Spring and Summer	Modern Science (S 11-12) English (E 13-14)	Modern Science (S 11-12) English (E 13-14)
Fall and Winter	Psychology (P 21-22) Business Finance (BA 21-22)	Modern Civilization (Ec 13-14) Accounting (A 11-12)
Spring and Summer	Economics (Ec 33-34) Law of Contracts and Business Associations (L 11-12)	Economics (Ec 33-34) Law of Contracts and Business Associations (L 11-12)
Fall and Winter	Public Relations (BA 31-32) Elective	Psychology (P 21-22) Business Finance (BA 21-22)
Spring and Summer	Elective Business Seminar (BA 41-42)	Elective Business Seminar (BA 41-42)
Fall and Winter		Elective Public Relations (BA 31-32)

## Sales and Marketing (Tentative Program)

	Sequence of subjects for Fall Admission	Sequence of subjects for Spring Admission
Fall and Winter	*Principles of Selling (SM 11-12) English (E 13-14)	
Spring and Summer	Psychology (P 21-22) Accounting (A 11-12)	Psychology (P 21-22) Accounting (A 11-12)
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Fall and Winter	*Principles of Marketing (SM 21-22) Public Relations (BA 31-32)	*Principles of selling (SM 11-12) English (E 13-14)
Spring and Summer	Economics (Ec 33-34) Law of Contracts and Business Associations (L 11-12)	Economics (Ec 33-34) Law of Contracts and Business Associations (L 11-12)
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Fall and Winter	*Market Analysis (SM 31) *Advertising (SM 32) Elective	*Principles of Marketing (SM 21-22) Public Relations (BA 31-32)
Spring and Summer	Elective *Sales Seminar (SM 41-42)	Elective *Sales Seminar (SM 41-42)
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Fall and Winter		*Market Analysis (SM 31) *Advertising (SM 32) Elective

### ANNOUNCEMENT OF SALES AND MARETING PROGRAM

In the Spring of 1946 a program of Sales and Marketing will be introduced as a part of the post-war development at the College. This program will offer opportunities for preparation for positions in selling, merchandising, marketing, and general distribution of commodities. It is intended that this program will provide the broad background on which the specific and technical phases of a given position will be based. It answers the desires of those students who wish to enter the sales field, not having had any previous experience. It also provides an opportunity for those in sales jobs to acquire a broader background leading to jobs of greater responsibility.

\* Course description has not been included in this bulletin due to the fact that further studies with professional organizations and personnel in the field are being conducted to determine complete and final course content.

## Office Supervision and Management (Tentative Program)

	Sequence of subjects for Fall Admission	Sequence of subjects for Spring Admission
Fall and Winter	*Office Practice and Methods (OM 11-12) English (E 13-14)	
Spring and Summer	Psychology (P 21-22) Accounting (A 11-12)	Psychology (P 21-22) Accounting (A 11-12)
Fall and Winter	*Office Supervision and Management (OM 21-22) Modern Civilization (Ec 13-14)	*Office Practice and Methods (OM 11-12) English (E 13-14)
Spring and Summer	Economics (Ec 33-34) Personnel Administration (PS 21-22)	Economics (Ec 33-34) Personnel Administration (PS 21-22)
Fall and Winter	Public Relations (BA 31-32) Elective	*Office Supervision and Management (OM 21-22) Modern Civilization (Ec 13-14)
Spring and Summer	Elective *Office Management and Supervision Seminar (OM 31-32)	Elective *Office Management and Supervision Seminar (OM 31-32)
Fall and Winter		Public Relations (BA 31-32) Elective

### ANNOUNCEMENT OF A PROGRAM IN OFFICE MANAGEMENT AND SUPERVISION

In the Spring of 1946 a program in Office Management and Supervision will be introduced as a part of the post-war development at the College. This program will offer opportunity for preparation for positions of responsibility in the field of office management. By study in office methods, systems, and practices plus a treatment of personnel administration and supervision, the student already employed in office work prepares himself for positions of greater responsibility. For those wishing to enter the field, a general background is acquired.

\* Course description has not been included in this bulletin due to the fact that further studies with professional organizations and personnel in the field are being conducted to determine complete and final course content.

## PROGRAMS IN DIVISION OF ENGINEERING

### Electrical Engineering (Communications)

	Sequence of Subjects for Fall Admission	Sequence of Subjects for Spring Admission
Fall and Winter	Mathematics (M 11-12) English (E 13-14)	
Spring and Summer	Physics (Ph 11-12) Engineering Drawing	Physics (Ph 11-12) Mathematics (M 11-12)
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Fall and Winter	Mechanics (EM 21-22) Mathematics (M 21-22)	Mechanics (EM 21-22) Mathematics (M 21-22)
Spring and Summer	D.C. Circuits (EE 21-22) Elective	D.C. Circuits (EE 21-22) English
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Fall and Winter	A.C. Circuits (EE 31-32) Electric and Magnetic Fields (EE 33-34)	A.C. Circuits (EE 31-32) Electric and Magnetic Fields (EE 33-34)
Spring and Summer	Electronics (EE 43-44) Communications Circuits (EE 45-46)	Electronics (EE 43-44) Communications Circuits (EE 45-46)
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Fall and Winter		Engineering Drawing Elective

### Electrical Engineering (Power)

	Sequence of Subjects for Fall Admission	Sequence of Subjects for Spring Admission
Fall and Winter	Mathematics (M 11-12) English (E 13-14)	
Spring and Summer	Physics (Ph 11-12) Engineering Drawing	Physics (Ph 11-12) Mathematics (M 11-12)
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Fall and Winter	Mechanics (EM 21-22) Mathematics (M 21-22)	Mechanics (EM 21-22) Mathematics (M 21-22)
Spring and Summer	D.C. Circuits (EE 21-22) Elective	D.C. Circuits (EE 21-22) English (E 13-15)
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Fall and Winter	A.C. Circuits (EE 31-32) Thermodynamics and Heat Power (Ph 31-32)	A.C. Circuits (EE 31-32) Thermodynamics and Heat Power (Ph 31-32)
Spring and Summer	Electronics (EE 43-44) A.C. Machines (EE 41-42)	Electronics (EE 43-44) A.C. Machines (EE 41-42)
<hr/>		
Fall and Winter		Engineering Drawing Elective

## Materials Engineering (Metals)

	Sequence of subjects for Fall Admission	Sequence of subjects for Spring Admission
Fall and Winter	Mathematics (M 11-12) English (E 13-14)	
Spring and Summer	Physics (Ph 11-12) Engineering Drawing	Mathematics (M 11-12) Physics (Ph 11-12)
Fall and Winter	Mechanics (EM 21-22) Inorganic Chemistry (Ch 22-22)	Mechanics (EM 21-22) Inorganic Chemistry (Ch 21-22)
Spring and Summer	Strength of Materials (EM 31-32) Engineering Materials (EM 25-26)	Strength of Materials (EM 31-32) Engineering Materials (EM 35-26)
Fall and Winter	Electrical Survey (EE 35-36) Non-ferrous Metallurgy (Mt. 31-32)	Electrical Survey (EE 35-36) Non-ferrous Metallurgy (Mt. 32-32)
Spring and Summer	Steels and Their Heat Treatment (Mt. 41-42) Elective	Steels and Their Heat Treatment (Mt. 41-42) English (E 13-14)
Fall and Winter		Engineering Drawing Elective

## Materials Engineering (Non-Metals)

	Sequence of Subjects for Fall Admission	Sequence of Subjects for Spring Admission
Fall and Winter	Mathematics (M 11-12) English (E 13-14)	
Spring and Summer	Physics (Ph 11-12) Engineering Drawing	Mathematics (M 11-12) Physics (Ph 11-12)
Fall and Winter	Mechanics (EM 21-22) Inorganic Chemistry (Ch 21-22)	Mechanics (EM 21-22) Inorganic Chemistry (Ch 21-22)
Spring and Summer	Strength of Materials (EM 31-32) Engineering Materials (EM 25-26)	Strength of Materials (EM 31-32) Engineering Materials (EM 25-26)
Fall and Winter	Electrical Survey (EE 35-36) Organic Chemistry (Ch 31-32)	Electrical Survey (EE 35-36) Organic Chemistry (Ch 31-32)
Spring and Summer	Plastics and Rubber (Ch 41-42) Elective	Plastics and Rubber (Ch 41-42) English (E 13-14)
Fall and Winter		Engineering Drawing Elective

## Mechanical Engineering (Design)

	Sequence of Subjects for Fall Admission	Sequence of Subjects for Spring Admission
Fall and Winter	Mathematics (M 11-12) English (E 13-14)	
Spring and Summer	Physics (Ph 11-12) Engineering Drawing	Mathematics (M 11-12) Physics (Ph 11-12)
Fall and Winter	Mechanics (EM 21-22) Mathematics (M 21-22)	Mechanics (EM 21-22) Mathematics (M 21-22)
Spring and Summer	Strength of Materials (EM 31-32) Mechanical Processes (EM 23) Engineering Materials (EM 26)	Strength of Materials (EM 31-32) Engineering Drawing
Fall and Winter	Elementary Machine Design (D 33-34) Mechanics of Machinery (EM 33-34)	Elementary Machine Design (D 33-34) Mechanics of Machinery (EM 33-34)
Spring and Summer	Advanced Machine Design (D 35-36) Elective	Advanced Machine Design (D 35-36) Mechanical Processes (EM 23) Engineering Materials (EM 26)
Fall and Winter		English (E 13-14) Elective

## Mechanical Engineering (Tool)

	Sequence of Subjects for Fall Admission	Sequence of Subjects for Spring Admission
Fall and Winter	Mathematics (M 11-12) English (E 13-14)	
Spring and Summer	Physics (Ph 11-12) Engineering Drawing	Mathematics (M 11-12) Physics (Ph 11-12)
Fall and Winter	Mechanics (EM 21-22) Mathematics (M 21-22)	Mechanics (EM 21-22) Mathematics (M 21-22)
Spring and Summer	Strength of Materials (EM 31-32) Elective	Strength of Materials (EM 31-32) Engineering Drawing
Fall and Winter	Elementary Machine Design (D 33-34) Methods Engineering (IA 33-34)	Elementary Machine Design (D 33-34) Methods Engineering (IA 33-34)
Spring and Summer	Steels and Their Heat Treatment (Mt 41-42) Tool Design (D 45-46)	Steels and Their Heat Treatment (Mt 41-42) Tool Design (D 45-46)
Fall and Winter		English (E 13-14) Elective



## PROGRAMS IN DIVISION OF MANAGEMENT

### Industrial Administration

	Sequence of subjects for Fall Admission	Sequence of subjects for Spring Admission
Fall and Winter	Modern Civilization (Ec 13-14) Industrial Organization and Management (IA 11-12)	
Spring and Summer	Modern Science (S 11-12) English (E 13-14)	Modern Science (S 11-12) English (E 13-14)
Fall and Winter	Psychology (P 21-22) Business Finance (Ec 23-24)	Modern Civilization (Ec 13-14) Industrial Organization and Management (IA 11-12)
Summer and Summer	Economics (Ec 33-34) Engineering Drawing	Economics (Ec 33-34) Engineering Drawing
Fall and Winter	Control of Production (IA 31-32) Elective	Psychology (P 21-22) Business Finance (Ec 23-24)
Spring and Summer	Elective Methods Engineering (IA 33-34)	Elective Methods Engineering (IA 33-34)
Fall and Winter		Control of Production (IA 31-32) Elective

### Personnel Supervision

	Sequence of subjects for Fall Admission	Sequence of subjects for Spring Admission
Fall and Winter	English (E 13-14) Industrial Organization and Management (IA 11-12)	
Spring and Summer	Modern Science (S 11-12) Psychology (P 21-22)	Modern Science (S 11-12) Psychology (P 21-22)
Fall and Winter	Modern Civilization (Ec 13-14) Organization for Supervision (PS 11) Methods and Costs (IA 14)	English (E 13-14) Industrial Organization and Management (IA 11-12)
Spring and Summer	Economics (Ec 33-34) Personnel Administration (PS 21-22)	Economics (Ec 33-34) Personnel Administration (PS 21-22)
Fall and Winter	Control of Production (IA 31-32) Elective	Modern Civilization (Ec 13-14) Organization for Supervision (PS 11) Methods and Costs (IA 14)
Spring and Summer	Elective Management-Labor Relations (PS 41) Personnel Seminar (PS 42)	Elective Management-Labor Relations (PS 41) Personnel Seminar (PS 42)
Fall and Winter		Elective Control of Production (IA 31-32)

# *Description of Courses*

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## **ACCOUNTING**

### **Accounting (A 11-12). Credit, 5 semester hours.**

This course is designed to give a thorough foundation in the theory of accounting. The fields of study covered include: interpretation of assets, liabilities and net worth, preparation of statements, books of original entry, ledged accounts, and closing books. In the development of the general theory, actual business problems are presented for discussion and solution.

### **Accounting (A 21-22). Credit, 5 semester hours.**

More advanced problems in the general field of accounting are covered in this course. Special attention is given to the adjustment of book records to reflect true conditions, to the preparation and interpretation of manufacturing accounts and statements, to partnership accounting and problems, and to accounting problems affecting corporations. The corporate balance sheet and the profit and loss statement, together with their respective accounts, are interpreted.

Prerequisite, A 11-12.

### **Cost Accounting (A 23-24). Credit, 5 semester hours.**

The basic requirements of cost accounting are developed during the first semester. Studies are made of materials, labor, and overhead accounting and control. A complete "Job Order" cost is worked out by the student. Assignments include various problems encountered in "Specific" or "Job Order" costs. A thorough study is made of cost statements, reports for management, and the control of distribution and selling costs.

The "Process" type of cost systems is developed at the beginning of the second semester. This is followed by a complete survey of "Standard" cost systems used both as "Basic Standards" and "Current Standards". The latest improvements in the application of standard costs to budgetary control are brought out.

Prerequisite, A 11-12.

**Accounting (A 31-32). Credit. 5 semester hours.**

This course is planned to cover subjects more advanced than those of the first and second years. It will include branch accounting and elementary coverage of consolidated statements, statements of application of funds, and accounting for estates and trusts. Selected problems from C.P.A. examinations will serve to review and drive home principles of accounting and accounting practice covered in the first and second years.

Prerequisites, A 21-22, L 11-12.

**Auditing (A 33-34). Credit. 5 semester hours.**

This course includes a consideration of the problems arising in the practice of the professional accountant, particularly with reference to balance sheet and general audits. Relationship with the client, the working papers, the audit procedure and program, the accounting principles, the preparation of the report, the ethics of the profession, the procedure to disclose fraud and defalcations, are studied and discussed.

The work of the course will include the study of textbook and the working of a laboratory set for an audit of a textile manufacturing company. Refinements and changes in audit procedure, resulting from advances in the profession and from criticisms and requirements of such governmental bodies as the Securities Exchange Commission, are included.

Prerequisite, A 21-22.

**Income Tax Procedure (A 41-42). Credit. 5 semester hours.**

This course embraces a practical application of the principles of the Federal Income Tax Law to concrete situations. The problems include the preparation of corporation, fiduciary, partnership and individual tax returns; claims for refunds, credit and abatement; records, reports, and requirements of Social Security and state and federal unemployment taxes; and the proper accounting procedure for tax records.

Prerequisite, A 21-22, or Acctg 11-12 if B average.

**C.P.A. Problems (A 43-44). Credit. 5 semester hours.**

This course is an analysis and study of C.P.A. Problems from examinations of state boards of accountancy and the American Institute of Accountants. There is included a study of the principles of municipal accounting with particular reference to the requirements of Connecticut laws and regulations, and the C.P.A. problems in the sub-

ject; institutional accounting with reference to methods peculiar to such institutions as colleges, hospitals, etc. A wide variety of problems is included, some of which are worked out under state examination conditions.

Prerequisite, Ec. 11-12, A 31-32. A 33-34 to be taken concurrently or presented as a prerequisite.

## **BUSINESS ADMINISTRATION**

### **Business Finance (BA 21-22). Credit, 5 semester hours.**

Business Finance is designed to give a general understanding of internal financial considerations within the business unit. The mechanics of budgeting procedure, and of cost analysis are included. The purpose of the course is to give lower and intermediate administrative personnel an understanding of the financial characteristics of the individual company. It is not intended to give training or technical skill in budget construction, cost accounting practice, etc. Class meetings, discussion, and problems are included.

### **Public Relations (BA 31-32). Credit, 5 semester hours.**

The aims of this course are: (1) to examine the principles involved in contracts between an organized unit (such as a business concern) and other organizations and individuals; (2) to explore the areas of such contacts by business units; and (3) to examine the principal methods and instruments of such public relations. Psychological factors, propaganda, agencies for the distribution of information and creation of opinions and attitudes, and various groups with which business has public relations are examined.

Pererequisite, P 21-22.

### **Seminar in Business (BA 41-42). Credit, 4 semester hours.**

This course is offered to give degree students in Business Administration an opportunity to examine problems and exchange views. Various contemporary issues related to business policy, administrative organization, public relations, etc., will be investigated. Work will consist of reading, independent research, group discussion, criticism, and submission of a written report by each member of the group.

Prerequisites: Forty hours of college credit of which at least twenty hours must be selected from Economics, Modern Civilization, Accounting 11-12, Business Finance, Psychology, Public Relations, and Law 11-12.

## BUSINESS LAW

### **Law of Contracts and Business Associations (L 11-12). Credit, 5 semester hours.**

Contracts and agency will involve a study of the formation of contracts, capacity of parties, offers and modes of acceptance and other requisites; performance of contracts, conditions upon duty to perform, and discharge; the appointment of agents, and the creation of agency; the employment contracts; power of agent to bind his principal in dealing with third parties; duties of agent and principal to one another.

Business Associations will involve the law relating to the formation and operation of the unusual types of business organizations, the rights and liabilities of partners among themselves and their relations to third parties, dissolution of partnership, limited partnership, the business trust, promotion and organization of corporations, the conduct of corporate affairs in their relations to the rights of stockholders and creditors.

### **Law of Sales (L 21). Credit, 2½ semester hours.**

The study of sales involves a detailed consideration of the laws governing the rights of parties engaged in the transfer of personal property. This covers questions of title, risks assumed, rights of creditors, express and implied warranties, buyers' and sellers' remedies, together with the business background out of which such relations arise.

Prerequisite, L 11-12.

### **Law of Commercial Paper and Bankruptcy (L 22). Credit, 2½ semester hours.**

This course treats of promissory notes, checks and bills of exchange with an analysis of their form and function in commercial transactions. A short survey is made of the National Bankruptcy (Chandler) Act.

Prerequisite, L 11-12.

## CHEMISTRY

### **Inorganic Chemistry (Ch 21-22). Credit, 5 semester hours.**

The objective of this course is to place emphasis on fundamental facts and principles of modern chemistry, particularly as applied in the field of engineering materials, and to afford practice in the accurate statement of scientific ideas and logical deduction from experimental observation. The course includes some laboratory work. *It does not presuppose any knowledge of chemistry.*

**Organic Chemistry (Ch. 31-32). Credit, 5 semester hours.**

This course is designed as a preliminary to advanced work with organic constructional materials, e.g., rubber and plastics. It deals with fundamental principles of molecular and crystal structure of organic compounds, particularly chain and ring structures. Polymerization and depolymerization are covered with emphasis on the correlated property effects. Lectures and laboratory work.

Prerequisite, Ch. 21-22.

**Rubber and Plastics (Ch. 41-42). Credit, 5 semester hours.**

This course is designed to acquaint the student with the manifold types of compounds employed industrially, with structural characteristics of each and the properties associated with specific structures, with fabrication processes, problems and variables and with the fields of utilization based on the background material. Lectures, discussion and some laboratory work are included.

Prerequisite, Ch. 31-32.

## **DRAWING AND DESIGN**

**Engineering Drawing (D 11-12). Credit, 5 semester hours.**

This is an elementary course in engineering drawing designed to teach the use of instruments, the fundamental principles of projection, drafting room standards and conventions, lettering, selection and use of scales, orthographic projections, revolutions, developed surfaces, intersections and auxiliary views, and the making and dimensioning of complete working drawings of simple machine parts.

**Engineering Drawing (D 21-22). Credit, 5 semester hours.**

This course is designed to develop the student's ability to visualize the assembly of machine parts. The work covers a review of the fundamentals of drafting, additional theory of orthographic projections and perspective sketchings, the making of detail and assembly drawings of simple machines involving the use of simple screw gear and level mechanisms.

Prerequisite, D 21-22.

**Elementary Machine Design (D 33-34). Credit, 5 semester hours.**

The analysis and design of such elements as fastenings, bearings, gears, shafts, clutches, pulleys, and cams are discussed. Some machine

parts are studied from the standpoint of kinematics, and their motions are analyzed.

Prerequisites, D 21-22, EM 21-22.

### **Advanced Machine Design (D 41-42). Credit, 5 semester hours.**

The elements of machine design studied in the first year are unified in the complete design, by each student, of a punch press or other machine. Advanced problems, such as balancing and critical speeds, are considered the latter part of the year.

Prerequisites, D 33-34, EM 31-32.

### **Tool Design (D 45-46). Credit, 5 semester hours.**

A lecture, discussion and drafting room course covering production tools, such as punches and dies, gauges, cutting tools, machine tools, jigs and fixtures. Stress is laid on strength, accuracy and costs, utilizing practical examples from industry. A part of the course consists of a thesis project—the complete tooling of a product including selection of equipment, fixtures, cutting tools, speeds and feeds, operating time, cost estimates, etc.

Prerequisites, D 33-34, EM 31-32.

## **ECONOMICS**

### **Modern Civilization (Ec 13-14). Credit, 5 semester hours.**

The purpose of this course is to give the student an understanding of the fundamental principles, philosophy, characteristics, and problems of modern society. The aim of the course is critical, rather than merely descriptive analysis. It treats such general issues as technical knowledge and its application to social organization; location and use of power. Ideas and philosophy, as well as the material aspects of our culture, will be examined.

### **Economics (Ec 33-34). Credit, 5 semester hours.**

Economics takes for its field the study of principles, institutions and practices by which people gain a livelihood. The course consists of a brief survey of economic history; a study of the institutions through which economic activities are carried on; and a detailed examination of the principles and processes bearing upon production, exchange and consumption, both in relation to the individual enterprise and to society at large.

## **ELECTRICITY**

### **Direct Current Circuits and Machinery (EE 21-22).**

**Credit, 5 semester hours.**

Fundamental theory of electric and magnetic circuits and its application to direct current machinery are considered. The course includes laboratory work in measurements of electrical quantities and characteristics of direct current motors and generators.

Prerequisite, M 11-12.

### **Alternating Current Circuits (EE 31-32). Credit, 5 semester hours.**

Fundamental theory of single phase and polyphase alternating current circuits, instruments and measurements is considered. Suitable laboratory work is included.

Prerequisites, EE 21-22, M 21-22.

### **Electric and Magnetic Fields (EE 33-34). Credit, 5 semester hours.**

The physical and analytical properties of electric and magnetic fields are investigated and correlated with circuit concepts such as self inductance, mutual inductance, and capacity. The basic ideas underlying the study of transient phenomena are introduced. Computation and laboratory work are included.

Prerequisites, M 21-22, EE 21-22.

### **Electrical Survey (EE 35-36). Credit, 5 semester hours.**

The basic principles of electrical engineering are developed and studied in relationship to their application to electrical equipment in common usage. Lecture, demonstration, computation, and laboratory work supplement the regular recitation classes.

Prerequisites, M 11-12, Ph. 11-12.

### **Alternating Current Machinery (EE 41-42).**

**Credit, 5 semester hours.**

This course deals with the fundamental principles of alternating current machinery and an introduction to the theory of electronic tubes, with emphasis on the industrial and economic aspects of their application. About one-quarter of the time is devoted to laboratory work.

Prerequisite, EE 31-32.



**Electronics (EE 43-44). Credit, 5 semester hours.**

The physics of electron tubes and their use as circuit elements is discussed. Amplification, oscillation, modulation, and detection are explained and their application to industrial devices and communication equipment is considered. Laboratory and computation work are designed to emphasize the important aspects of the class study.

Prerequisite, EE 31-32.

**Communication Circuits (EE 45-46). Credit, 5 semester hours.**

The properties and uses of completed circuits, transmission lines and filters are developed and discussed. The fundamentals of electromagnetic waves and their application to antenna radiation problems and the propagation of waves along guides are investigated. Computation and laboratory work are included.

Prerequisites, EE 31-32, EE 33-34, EE 43-44.

## **ENGINEERING MECHANICS**

**Mechanics (EM 21-22). Credit, 5 semester hours.**

In the first semester, the theory and application of the principles of static equilibrium, stress in framed structures, center of gravity and moment of inertia; force, mass and acceleration, and friction are studied.

In the second semester, rectilinear and curvilinear motion; work, power and energy; impulse and momentum; and a practical study of machine elements and problems in machine design are considered.

Prerequisites, M 11-12, Ph 11-12.

**Mechanical Processes (EM 23). Credit, 2½ semester hours.**

This course is designed to acquaint the student with the basic processes and equipment of industry. It begins with the processes involved in the production of engineering raw materials and proceeds through the various methods by which these materials are formed and combined into finished products. Foundry, forge, machine-shop, presswork, die-casting, and welding are examples of the methods and equipment discussed.

**Engineering Materials (EM 25-26). Credit, 5 semester hours.**

A survey of the common engineering materials including wood, concrete, plastics, fibres and rubbers in the first half and metals in the second half, this course is conducted largely by lecture and discussion but with occasional laboratory periods of a demonstration nature. Attention is directed to the production of these materials, methods of forming or of fabrication, and typical properties of the final product—the bases for the selection of a particular material for a specific use.

**Strength of Materials (EM 31-32). Credit, 5 semester hours.**

This course considers the theory of stress and resistance of materials; stress distribution in riveted joints, shafts, beams, and columns; principal stresses; laboratory practice in materials testing; hardness, fatigue and impact strength; and problems in machine design and building construction.

Prerequisite, EM 21-22.

**Mechanics of Machines (EM 33-34). Credit, 5 semester hours.**

Advanced applied mechanics emphasizes the applications of engineering problems including governors, gyroscopic devices, balancing, vibration, friction, dynamics of the reciprocating engine, hoisting machinery, etc. The course is of the lecture and discussion type with assigned problems designed to encourage analytical reasoning.

Prerequisite, EM 21-22.

## ENGLISH

**Grammar Laboratory (English A). A one semester course.**

This course is intended to bring students to an acceptable level of proficiency in English grammar and usage, whatever their prior preparation in the subject may have been. Special work is prescribed for those whose preparation is inadequate and for those who show need of review. The objectives of the course are: first, to teach the student the fundamental principles upon which good English is based; second, to give him practical experience in the use of themes, recitations, note-books and conferences; and to train in the use of the dictionary.

### **Reading Laboratory (English B). A one semester course.**

This course is planned, first, to meet the needs of students who need to gain skill in reading, and second, to arouse intellectual curiosity and an appreciation for wider and deeper reading. Skill in comprehension and speed is taught by exercises given to improve use of the eyes, through cultivation of good muscular habits; a broadened vocabulary, through alertness about words; faster and more concentration; and, finally, speed.

### **Writing Laboratory (E 13). Credit, 2½ semester hours.**

This laboratory course is designed primarily to help students learn to write by writing—to develop the ability to organize thoughts quickly and effectively, to write with speed and facility, and to use good simple written English. In addition to familiarizing the student with the basic principles of expository writing, the laboratory section provides practice in applying these principles to the writing of letters, memos, reports, job descriptions, and other business papers.

### **Speaking Laboratory (E 14). Credit, 2½ semester hours.**

This course serves as an introduction to the principles of speech. The objectives are: to develop in the student proficiency in the use of vocal and bodily aids in various speaking situations, and to help the student gain confidence and fluency when speaking extemporaneously, as in group discussions, or in everyday conversation. Recordings are used for self-analysis and criticism.

## **INDUSTRIAL ADMINISTRATION**

### **Industrial Organization and Management (IA 11-12).**

**Credit, 5 semester hours.**

This is a fundamental course dealing with the history of American industry; the organization of the industrial enterprise; the making of the product, with its manifold problems of men, materials, and machines; and the distribution of the product to the consumer. Through such a survey, together with specific cases, the intent is to provide a working knowledge of our highly complex industrial organizations, and at the same time, to establish the principles by which competent management is guided.

### **Methods and Costs (IA 14). Credit, 2½ semester hours.**

Specific consideration is given to the responsibility of the superior or foreman in working with the cost and methods departments. The two subjects of methods and costs are considered together because of their close relationship in industrial operations and because of their effect on industrial stability. This course is intended to develop the analysis and procedures is also covered. Attempt is made to provide basic principles of work simplification. An appreciation of methods an understanding of the factors comprising cost and the principles involved in the analysis and control of costs.

### **Control of Production (IA 31-32). Credit, 5 semester hours.**

The instruction stresses the basic principles that govern production control in an industrial plant. The procuring and control of materials; the problem of routing, scheduling, dispatching, and follow-up; the questions of inspection of products and quality control—these are indicative of the nature of the course. Its intent is to train the student in the use of the most up-to-date methods in his field.

### **Methods Engineering (IA 33-34). Credit, 5 semester hours.**

Instruction in methods of analyzing plant equipment, products, and operations is covered in this course. Process charts, flow charts, analysis sheets, preparation of summaries of operations, analyses of tools and equipment requisite, specifications for materials, the handling of material in process, adapting plants to new products, the correlation of methods to safety and health requirements are some of the items considered.

## **MATHEMATICS**

### **Elementary Mathematics (A-B, C-D). Four semesters.**

Plane geometry and algebra are taught as one continuous course with emphasis on the algebra. The work in algebra includes the following topics: factoring, fractions, theory of equations, law of exponents, inequalities, ratio and proportion, problems, and many similar applications from physics. The principal propositions in plane geometry are discussed and proved, as far as possible, by the use of algebra. Special emphasis is given to the solutions of originals in plane geometry.

*Admission to the course is on the basis of the high school record and the general examination required of all entering students.*

**Mathematics (M 11-12). Credit, 5 semester hours.**

The two-year course in mathematics is designed to be one of continuous development. Mathematics 11-12 is the basis of what follows during the second year. Here, the student learns to state known information about related quantities in mathematical form and to apply operations already learned to this statement so as to obtain new information. The fundamental ideas are illustrated by reviewing topics studied in algebra and geometry. Then the necessity of the limit operation is motivated and its basic consequences considered. Subsequently the general ideas of the differential integral calculus are developed.

**Mathematics (M 21-22.) Credit, 5 semester hours.**

A short time is spent reviewing the concept of limit of a function. The work then proceeds to the consideration of the application of the calculus to problems of geometry and the special sciences. Among the applications considered is the use of differential equations of the second order with constant coefficients.

Prerequisite, M 11-12.

## **METALLURGY**

**Non-ferrous Metallurgy (Mt. 31-32). Credit, 5 semester hours.**

The physical metallurgy of aluminum, magnesium, copper, nickel, zinc, lead, tin and their alloys is covered by lecture, discussion and laboratory work. Melting, alloying, casting, extruding, rolling or drawing, and heat treatment of the metals are studied with emphasis on the efforts of variables and reasons therefor. Typical mill and service difficulties are analyzed in light of the specific fundamental principles involved.

Prerequisite, Ch. 21-22.

**Steels and Their Heat Treatment (Mt. 41-42).**

**Credit, 5 semester hours.**

The course covers all grades of carbon and alloy steels used for press, structural, automotive, tool and die work, and in addition, cast irons as a supplementary or competitive material. The fundamentals, Fe-C phase diagram and transfer diagrams, grain size, hardenability, etc., are studied first and then applied to a study of heat treatments including annealing, hardening, tempering, carburizing, etc. Equipment including protective atmospheres, liquid baths, and induction heating are considered with a view of the particular fields of application. Laboratory work is supplemented by lectures and discussions.

Prerequisite, EM 31-32.

## PERSONNEL SUPERVISION

### **Organization and Supervision (PS 11). Credit, 5½ semester hours.**

Through discussion of actual cases and prepared case problems, this course is designed to investigate the principles involved in day to day leadership which are conducive to good morale accompanied by high production at low cost. Working relationships between departments and between individuals will be major fields for examinations.

### **Personnel Administration (PS 21-22). Credit, 5 semester hours.**

By its nature and purpose, this course is divided into two parts. The first, dealing with the basic concepts of personnel supervision, is concerned with the principles of personal adjustment, the social organization of business, motivation and incentives, employee attitudes, and morale.

In the second term, emphasis is placed on such techniques of personnel administration as interviewing, job analysis, appraisal and placement, training, merit rating, employer-employee relations, and wage administration.

### **Management-Labor Relations (PS 41). Credit, 2½ semester hours.**

A survey course designed to provide an understanding of the problems involved in Management-Labor Relations through a study of background material and current practices. The course includes collective bargaining and the labor contract; the government and legal framework of management-labor relations; problems of wages, hours, working conditions and grievance procedure. Where possible, the course is developed by conference methods and with the aid of guest speakers.

### **Personnel Seminar (PS 42). Credit, 2½ semester hours.**

There are two main objectives in this course: (1) Practice in conference leadership. (2) Tying together the educational work covered in this program and the practical experience of the student. This will be done through carefully chosen problems which will vary from year to year. Each student will prepare a report and conduct class discussions concerning his problem.

Prerequisites: Open to advanced students only.

## PHYSICS

### **Engineering Physics (P 11-12). Credit, 5 semester hours.**

This is a basic course in physics for technical students with laboratory, lectures, and demonstrations. In addition to the basic principles of physics, the course includes use of the slide rule, applied mathematics, and graphical methods of presentation and analysis.

The course helps to orient the student to the engineering profession, so that he may better understand the methods of thought and work. One important aim is to develop the habit of using correct methods of thinking and analysis in the solution of engineering problems.

Prerequisite, M 11-12 to be presented as a prerequisite or taken concurrently.

### **Thermodynamics and Heat Power (Ph. 31-32).**

**Credit, 5 semester hours.**

The principles of thermodynamics, energy and energy transformations, properties of media, availability of energy, typical processes and cycles, combustion processes, and flow of fluids are discussed in this course.

Prerequisites, Ph. 11-12, M 21-22.

## PSYCHOLOGY

### **Psychology (P 21-22). Credit, 5 semester hours.**

This is a course in psychology applied especially to contemporary problems in business and industry. Following an initial survey of the basis of human behavior, attention is directed to a study of the means of predicting and controlling the behavior of both individuals and groups.

## SCIENCE

### **Modern Science (Sc 11-12). Credit, 5 semester hours.**

This course is designed to give the student a knowledge of the physical sciences and of scientific method. It is not a laboratory course, but will deal with primary source material. Its aim is to emphasize the use of the scientific approach to all problems, and at the same time, to enable the student to appreciate fully the impressive impact of science upon his life.







